



E. F. ASSOCIATES

INCORPORATED

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August 8, 1966

Mr. T. Nelson
Sys. Consultant
Box 1546
Poughkeepsie, New York 12603

Dear Mr. Nelson:

We thank you for your interest in our transistorized synthesizers and are pleased to enclose our latest brochures.

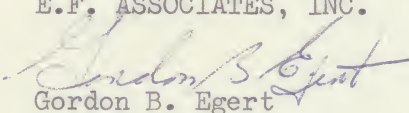
TYPE FS 30: This unit covers the range 300 HZ to 34 MHz with crystal-locked steps of 10 HZ (1 HZ on request) and an incremental tuning of ± 0.05 HZ (± 0.005 HZ on request). The stability of the built in 1 MHz crystal oscillator is about 3 parts in 10^9 and can be synchronized with an external 1 MHz standard frequency. The output level (e.m.f.) is max. 1.3 volts (variable) into an impedance of 50 Ω .

TYPE FSM 500: This unit is an extension unit for our type FS 1, FS 2 or FS 30 covering a range from 27 MHz to 470 MHz and including AM-FM modulation. It has crystal locked steps of 1 MHz, the fine tuning being performed by the FS 1, 2 or 30. Combining the FS 30 and FSM 500 we can generate a modulated (AM-FM) signal on the entire range of 300 HZ to 470 MHz.

For further details and special applications, please let us hear from you indicating your requirements.

Very truly yours,

E.F. ASSOCIATES, INC.


Gordon B. Egert

GBE:hk
Enc. 3

Manufacturer: SCHLUMBERGER GmbH
8000 München 13, Bayerstraße 13
Western Germany

VHF Frequency Synthesizer Type FS 500

(Range Extension Unit for Type FS 30)



- Outstanding Wide Frequency Range: **27 Mc to 470 Mc**
- Tuning: 1Mc Crystal-Accurate Intervals;
(finer increments by type FS 30)
- Extremely High Spectral Purity
- High Output Level: **1 Volt E. M. F.**, 50 Ohms Impedance
- AM/FM-Modulation provided in the Type FSM 500
- Battery Powered (Incorporated) for 5 Hours Operation
- Power Consumption **20 Watts** only
- Module-Design and fully Transistorized

Many applications in the communications field as a variable high-precision standard for measurements on all types of electrical and mechanical filters, narrow band communication systems, telemetry systems, Doppler-system, precision time measurements and others.

General Performance

The generator type FS 500 provides an extremely wide frequency coverage in 8 switchable ranges. The dials are calibrated in 1 Mc-increments (controlled by an external 1 Mc standard frequency) and the generator phase-locks on these points by automatic motorsetting being close to a multiple of 1 Mc. Operating a push button which releases the synchronisation, the generator can be tuned continuously throughout the range for quick search or low-accuracy measurements.

The output level is shown on a indicating meter calibrated 2 volts f. s. d. The output E. M. F. can be continuously varied ≈ 0 to > 1 volt and decoupled at a screw-in type socket, which is easy exchangeable if another type is requested.

The unit incorporates if required an automatically rechargeable battery-unit for selfcontained operation of about 5 hours. A 1 Mc-crystal oscillator is not contained because the type FS 500 is mainly an extension unit for types FS 1 (2) and FS 30 to provide a wider frequency coverage. Therefore the 1 Mc crystal standard and the interpolation signal (21 to 22 Mc) is supplied by one of the mentioned types in the lower frequency range. The interpolation accuracy amounts to 1 cps phase locked steps and ± 0.005 cps fine tuning (FS 1 [2]) or 10 cps phase-locked steps and ± 0.05 cps fine tuning (FS 30).

Of very great importance is the fact, that the spectral purity of type FS 500 is extremely high and enables critical measurements.

Specification:

Frequency range	27 Mc to 470 Mc
Setting accuracy	phase-locked steps of 1 Mc (for more accurate incremental tuning the types FS 1 (2) or FS 30 can be used featuring ± 0.01 cps or ± 0.1 cps).
Dial	8 switchable ranges calibrated in 1 Mc-steps: 1. 27... 39 Mc 5. 103... 149 Mc 2. 39... 52 Mc 6. 149... 223 Mc 3. 52... 73 Mc 7. 223... 338 Mc 4. 73... 103 Mc 8. 338... 470 Mc
Crystal accuracy	no internal crystal standard provided. Signal accuracy depends on external crystal-source of 1 Mc used for controlling the FS 500.
Required input	approx. 0.5 volt (supplied by FS 1 (2) or FS 30)
Signal Output	
Output voltage (e. m. f.)	max. 1 volt r. m. s.
Source impedance	50 ohms (VSWR < 1.1)
Level control (manual)	≈ 0 to 1 volt (meter calibration to 2 volt)
Harmonics (distortion)	approx. 5%
Spurious modulation	a) a. m.: > 70 db (LF bandwidth to 15 kc) b) f. m.: ≥ 90 db, at 30 Mc (LF-bandwidth to 15 kc, referring to a mod. deviation of 100 kc) approx. 70 db at 500 Mc (LF-bandwidth to 15 kc, referring to a mod. deviation of 100 kc)

Power supply

Voltage selector	117 volts / 220 volts $\pm 20\%$
Mains frequency	50 to 400 cps
Power consumption	approx. 20 watts
Battery operation	plug-in unit type BAT 1 on request, automatically rechargeable, operation time approx. 5 hours.

Dimensions, weight

	Rack-version	Bench-case version
Width	19.0 inch	18.0 inch
Height	7.0 inch	7.3 inch
Depth	14.0 inch	14.0 inch
Weight	approx. 74 lb.	77 lb.
Weight including BAT 1	approx. 79 lb.	82 lb.

E. F. ASSOCIATES, INC.
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Changes without notice!